

CLAIMS

We Claim:

1. An expression cassette, comprising a promoter operably linked to a nucleic acid molecule which, when transcribed *in vivo*, forms double stranded RNA that induces the production of interferon, wherein said expression cassette is selected from the group consisting of:

(a) an expression cassette which, when transcribed *in vivo*, forms self-complementary RNA; and

(b) an expression cassette comprising a first promoter operably linked to a first nucleic acid molecule, and a second promoter operably linked to a second nucleic acid molecule, wherein said first and second nucleic acid molecules, when transcribed *in vivo*, form double stranded RNA that induces the production of interferon.

2. The expression cassette according to claim 1 wherein said cassette comprises an expression cassette according to claim 1(a) and not claim 1(b).

3. The expression cassette according to claim 1 wherein said cassette comprises an expression cassette according to claim 1(b) and not claim 1(a).

4. The expression cassette according to claim 1 wherein said RNA is not translated into protein *in vivo*.

5. An expression cassette, comprising a promoter operably linked to a ribozyme or antisense nucleic acid molecule which, when transcribed *in vivo*, forms a ribozyme or antisense RNA molecule that promotes an immune response.)

6. The expression cassette according to claim 5 wherein said ribozyme or antisense molecule cleaves or inhibits an RNA transcript that encodes a factor that inhibits cellular interferon production.

7. The expression cassette according to claim 6 wherein said ribozyme or antisense molecule cleaves or inhibits a transcript which encodes IRF1 or YY1.
8. The expression cassette according to claim 6 wherein said ribozyme or antisense molecule cleaves or inhibits a transcript which encodes IL-10 or a cyclooxygenase gene.
9. An expression cassette, comprising a promoter operably linked to a ribozyme or antisense nucleic acid molecule which, when transcribed *in vivo*, promotes apoptosis.
10. The expression cassette according to claim 9 wherein said nucleic acid molecule cleaves or inhibits a transcript which encodes Bcl-2 or Bcl-xL.
11. The expression cassette according to any one of claims 1, 5, or 9 wherein said promoter is a pol I or a pol III promoter
12. The expression cassette according to claim 11 wherein said pol III promoter is an Adenovirus VA1 promoter.
13. The expression cassette according to claim 9, further comprising a promoter operably linked to a nucleic acid molecule which, when transcribed *in vivo*, forms double stranded RNA that induces the production of interferon.
14. The expression cassette according to any one of claims 1, 5, or 9, further comprising a promoter operably linked to a nucleic acid molecule that encodes a polypeptide of interest.
15. The expression cassette according to claim 14 wherein said promoter which is operably linked to a nucleic acid molecule that encodes a polypeptide of interest is a pol II promoter.

17. The expression cassette according to claim 14 wherein said polypeptide promotes apoptosis.

19. The expression cassette according to claim 18 wherein said pathogenic agent is a virus.

20. The expression cassette according to claim 19 wherein said virus is selected from the group consisting of HIV, HSV, HBV, HCV, HPV, and FIV.

21. The expression cassette according to claim 18 wherein said pathogenic agent is a bacteria, parasite or fungus.

22. The expression cassette according to claim 18 wherein said pathogenic agent is a tumor.

23. The expression cassette according to claim 14 wherein said polypeptide is a cytokine.

24. The expression cassette according to claim 23 wherein said cytokine is selected from the group consisting of IL-2, IL-12 and IL-15.

25. The expression cassette according to claim 23 wherein said cytokine is gamma-interferon.

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30. The expression cassette according to claim 29, wherein the element is a bacteria, parasite or fungus.

31. The expression $\frac{1}{x^2}$ is a tumor.

32. The expression cassette according to claim 31, wherein the promoter is a pol II promoter.

33. The expression cassette according to claim 32, selected from the group consisting of CMV, SV40, and

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35. The gene delivery vector according to claim 34 wherein said vector is a plasmid.

36. The gene delivery vector according to claim 34 wherein said vector is a recombinant retrovirus.

37. The gene delivery vector according to claim 34 wherein said vector is a recombinant herpesvirus.

38. The gene delivery vector according to claim 34 wherein said vector is a recombinant poxvirus.

39. The gene delivery vector according to claim 34 wherein said vector is a recombinant adenovirus.

40. The gene delivery vector according to claim 34 wherein said vector is a recombinant parvovirus.

41. The gene delivery vector according to claim 34 wherein said vector is a recombinant alphavirus.

42. The gene delivery vector according to claim 34 wherein said vector is a recombinant polyoma virus.

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43. The gene delivery vector according to claim 34 wherein said vector is a eukaryotic layered vector initiation system.

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44. A cell which contains an expression cassette according to claim 1 or a gene delivery vector according to claim 34.

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